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## LETTER TO THE EDITOR

# Response to letter to editor regarding Seizure-precipitating factors in dogs with idiopathic epilepsy

Dear Editor,

Thank you for the opportunity to respond to the letter from Dr. den Hertog regarding our recent publication "Seizure-precipitating factors in dogs with idiopathic epilepsy."

We are glad that our article is raising interest and thank Dr. den Hertog for his input in evaluating our work. In his letter to the Editor, he raises some concerns regarding the methods we have used in our study. Seizure-precipitating factors are not widely studied in veterinary medicine and this kind of questionnaire study has never been conducted before. However, many clinicians do recognize these kinds of situations in their patients. Thus, our goal was to make initial estimations of the variety of possible precipitating factors in dogs with idiopathic epilepsy. We are aware of the limitations of our study and agree that with a questionnaire study the causality between precipitating factors and seizures cannot be confirmed.

Firstly, Dr. den Hertog was concerned about the recall bias caused by this kind of questionnaire studies. Different kinds of questionnaires have repeatedly been used to report precipitating factors in human epilepsy patients.<sup>1-5</sup> Therefore, we felt that a questionnaire study is reliable enough to make initial estimations about this matter, as was our goal. We developed our questionnaire based on the research regarding precipitating factors in human epilepsy patients.<sup>1,2,4,5</sup> To increase the reliability of the study, the interview was done by 1 neutral interviewer and the questionnaire was first tested in 10 pilot dogs. Furthermore, our findings were very similar to what questionnaire studies have reported about precipitating factors in human epilepsy patients.

Secondly, Dr. den Hertog is concerned about the fact that there is no clear medical explanation for stress to cause seizures 1-2 days later. Based on the current data, the mechanisms by which precipitating factors lower seizure threshold are most likely diverse. Still, as stated in our article, several human studies have reported similar temporal associations as what we reported in our study. One human study showed that after a less stressful day the probability of seizures was significantly lower for 2 consecutive days.<sup>6</sup> Another study reported moderate or severe stress to significantly increase the likelihood of seizures the next day.<sup>7</sup> Additionally, human diary studies show that stress

and sleep deprivation affect the likelihood of seizures for the subsequent 24-48 hours.<sup>6,7</sup>

Thirdly, Dr. den Hertog also raises concern about the difference in precipitating factors reported between open-ended and check list questions. We agree that close-ended questions may result in false-positive answers and thus overestimate the prevalence of precipitating factors. However, we decided to employ a check list to help owners recognize those situations better which may precipitate seizures. We believe that by combining the check list with the open-ended questions, we could better achieve the full extent of possible seizure-precipitating factors. The same method has been used in some human studies as well, and they have reported similar results.<sup>1,8</sup>

The final concern Dr. den Hertog raised was the lack of control group. We agree that this is a limitation of our study which reduces the power of our research. However, considering that this study was conducted with patients from hospital populations, a more extensive control group was difficult to execute. Further studies are needed to overcome this limitation.

As we state in our article, we are aware of the limitations a questionnaire sets. We agree that the results rely heavily on the memory and perceptions of the dogs' owners and are thus prone to recall bias. Thus, the results need to be interpreted with caution. Researchers studying human epilepsy patients have conducted prospective diary studies on seizure-precipitating factors. These studies have at least partly confirmed the results of numerous questionnaire studies.<sup>6,7</sup> Accordingly, we agree that similar prospective diary studies are needed in veterinary medicine to confirm the results of our study.

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